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ABSTRACT

An outline is presented of the design of the followup surveys of the National Longitudinal Study of the High School Class of 1972 (NLS). The NLS is an extensive study of the educational, vocational, and personal develcpment of high school graduates, and the personal, familial, social, institutional, and cultural factors that contribute to that development. A discussion of various aspects of the followup survey focuses on the potential problems of nonresponse, tracing the base-year group, followup stategies, and response rate. The paper also highlights the content of the NLS questionnaires, pointing out some data analysis which the National Center for Educational Statistics plans to conduct, plus some potential analyses in which other sections of the education community could play a major role. (Author/EVH)

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THE LONGITUDINAL STUDY OF EDUCATION EFFECTS:

DESIGN OF THE FOLLOW-UP SURVEYS

by

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Presented at a Session on: "The Longitudinal Study of Educational Effects"
at the Annual Meeting of the American Association for the
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As noted by previous speakers, the longitudinal approach offers a unique opportunity to obtain certain types of data. By the same token, it poses very special challenges in design and strategy.

Tracing a group of young people who are at one of the most mobile stages of life, and persuading them to spend time on the survey questionnaire, is one of these challenges. The most sophisticated conceptual models and survey instruments are of little avail if the group responding at any stage is a nonrepresentative segment of the primary sample.

Our basic plan calls for the follow-ups to span a six to eight year period. The first chart shows the plan through 1976--the first four years. For reference, the chart identifies a few major events for students following certain standard paths--for example, attending a conventional four-year college or university. Students not in these standard paths will of course be covered in our study (for example, those who move back and forth from one path to another, and the academic drop-out, drop-ins). Such students will be of greater interest, if anything, since we now know very little about their numbers and characteristics.

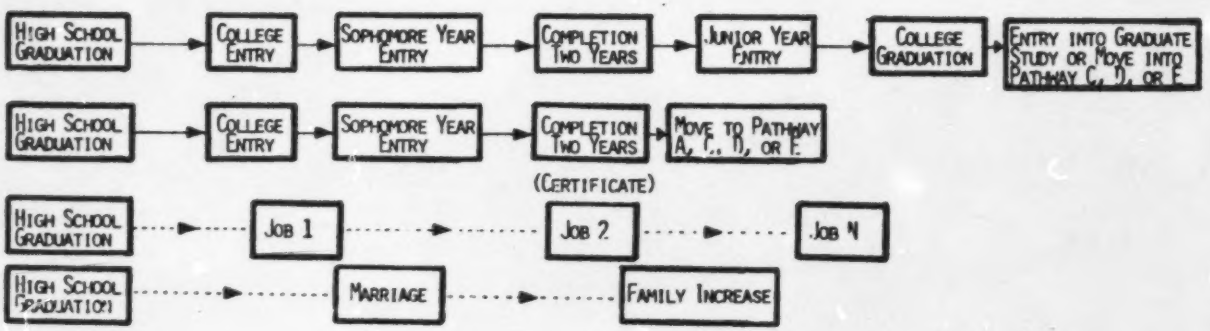
We are not inflexible with respect to our long-term plan, and at every critical stage we plan to consider carefully the impact of attrition. If we, with the help of our several planning committees, judged at any time that the amount or precision of data no longer justifies the cost of further follow-up, we would drop the cohort.

CHART 1

DATA COLLECTION SCHEDULE AND SELECTED ACTIVITY PATTERNS, 1972-1976

DATE	1 SPRING 1972	2 FALL 1972	3 FALL 1973	4 SPRING 1974	5 FALL 1974	6 SPRING 1976	7 FALL 1976
NLS-'72 EVENT	BASE YEAR DATA COLLECTION	(NONE)	FIRST FOLLOW-UP	(NONE)	SECOND FOLLOW-UP	(NONE)	THIRD FOLLOW-UP

PATHWAYS



E. NO SIGNIFICANT ACTIVITY (ILLNESS, LOAFING, TRAVEL, ETC.)

Our first follow-up has been in progress since October 1973, but plans for it go back to the initial development of the study. When this first follow-up effort is completed--probably early in April 1974--we hope to have a response rate of 90% for the initial, primary sample described earlier. If we meet this goal, we will have a better response rate on follow-up than on our base-year data collection. This paradox is explained by the fact that we are attempting to follow-up members of the primary sample who did not participate in the base-year study, as well as those who did participate.

Resurvey of base-year nonrespondents. For reasons largely beyond our control, the base-year study was launched relatively late in the 1971-72 school year. About four-fifths of the primary sample of schools were able to participate, a rate which we did not consider entirely satisfactory for a study of this scope. Most of the nonparticipants reported that their refusal stemmed from problems of timing, not from lack of interest in the study. Accordingly, it was decided that special efforts were in order to bring the previous nonparticipants into the study as of fall 1973.

We recognize, of course, that we cannot turn back the clock and obtain a complete picture of these students as they were during their final year of secondary school in spring 1972. The so-called resurvey effort was therefore limited to relatively hard data, rather than to attitudes, plans, or perceptions, which are likely to change substantially over time. It is indeed regrettable that we could not obtain full data on the complete sample. However, I would not underestimate

the value of the information about the full cohort, and its educational and vocational experiences, which we will gain because of the resurvey effort.

Data from the resurvey effort will be useful not only in supplementing the base year sample but also in providing an indication of effects of nonresponse in our initial sample. We have speculated on possible self-selection factors that might make the initial response group unrepresentative in some ways; we now look forward to obtaining empirical data on this point.

Attempts to bring the nonparticipating schools into the study have been successful beyond our most optimistic aspirations, with some 98% of the original primary sample of schools now participating. Schools in this resurvey effort were asked for a strictly limited contribution, as compared with the requirements on base year participants: (1) a list of 1972 graduates from which we drew a sample for our study; (2) the last known address for students in our sample; (3) information about the student's program and academic record, and about the school itself.

The response rate for students in the resurvey sample was expected to be somewhat lower than for students in the base year group; our expectations were correct, as will be noted later in this paper.

Tracing the Base Year Group. Our survey plan, from the start, included unusually extensive information to aid in tracing the original subjects. Profiting by past experience on our own part and on the part of others who have candidly described their follow-up failures, we included in the base year questionnaire not only the student's name,

address, and Social Security Number, but such additional data as the name and address of two people who would always know where to get in touch with the respondent, State of registration and identification numbers of driver's license, and name and address of any postsecondary school he or she planned to attend.

Tracing activities were initiated in July 1973, 13 months or more after the last previous contact with the subjects. A project newsletter was accompanied by a return postcard, for verifying or revising the mailing address. Returns from this mailing were not as complete as hoped for--slightly over one-third of addressees were heard from. We are unable to account fully for the low rate of return. We think that many recipients saw no reason to confirm a correct address, despite what we thought was clear counsel to do so. Nonetheless, results of our summer tracing definitely reduced our workload in the fall follow-up operation. For example, about 1,500 newsletters were returned as undeliverable; almost all of these addressees were traced by telephone, and new addresses obtained. Further, some 3,000 subjects reported new and different addresses on their return postcards.

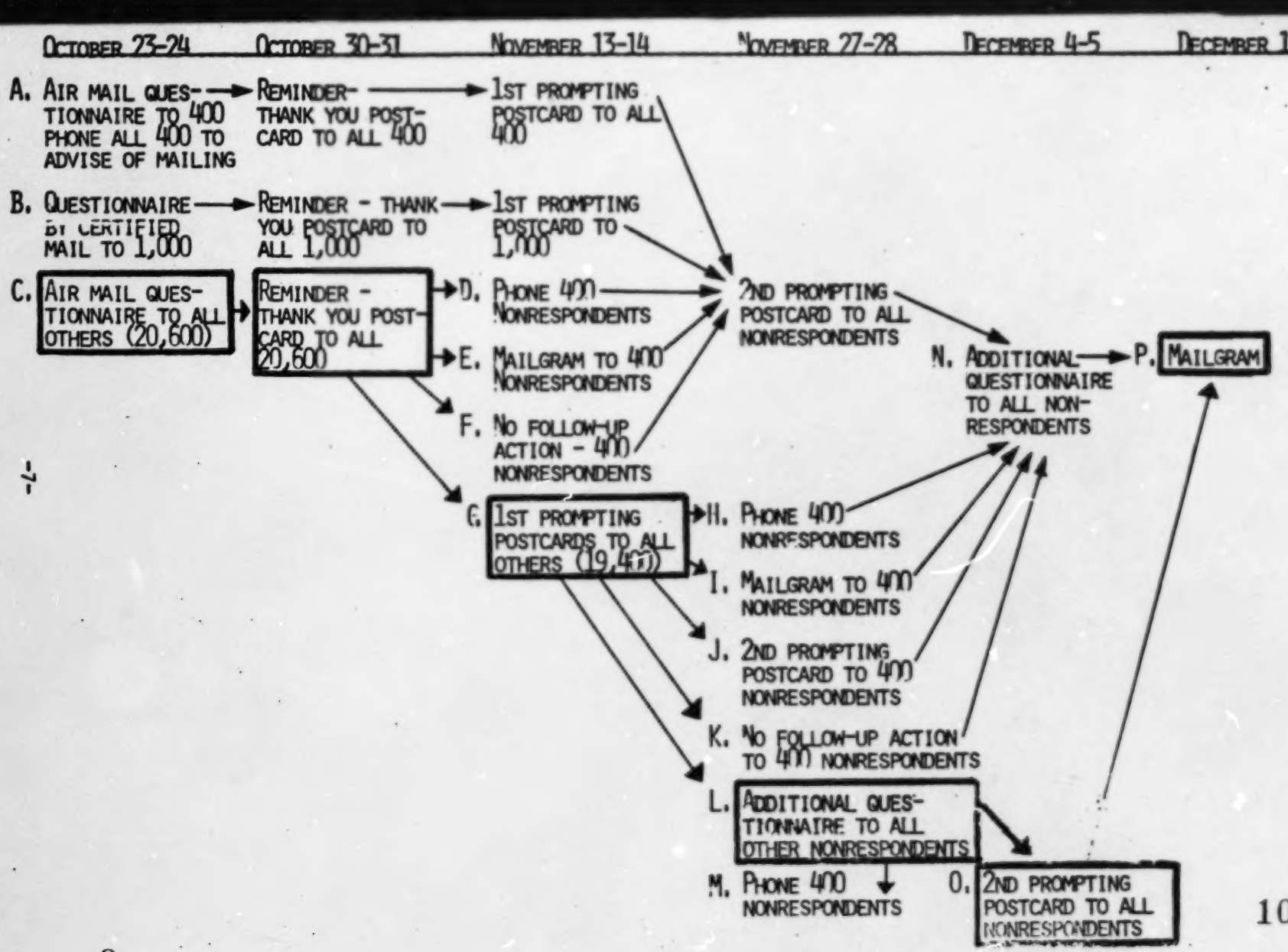
Follow-up strategy. Experiences in other longitudinal studies and in our own pretests, together with cost considerations, led to our final choice of strategies. Our RFP specified that our contractor limit his efforts to mail follow-up (or other non-interview techniques) and that the Bureau of the Census subsequently conduct personal interviews to obtain data from subjects who did not respond to the mail questionnaire. The contractor's goal for obtaining acceptable mail questionnaires was

60 percent; he was also responsible for tracing and locating current addresses for all remaining subjects for use of the Bureau of the Census in its field work.

The first phase of the follow-up was initiated shortly after the October mailout, and completed around the end of December. The interview phase is currently underway, scheduled for completion around April 1. It would be hazardous to predict that we will, in fact, reach our overall 90% response goal. I can, however, report that we did meet (and even slightly surpass) our goal of 60% in the non-interview phase.

Our follow-up strategy was designed primarily to produce a maximum response rate consistent with resource considerations. At the same time, we were eager to utilize this opportunity to obtain information that might lead to improvements of strategy in subsequent efforts. Accordingly, our contractor developed a plan that would give us such information. Chart 2 summarizes the follow-up strategy. This plan does not purport to represent a rigorous design for comparison of experimental treatments; it was intended to give us practical guidance for future follow-ups. Entries in boxes represent the principal strategy followed with the great majority of subjects.

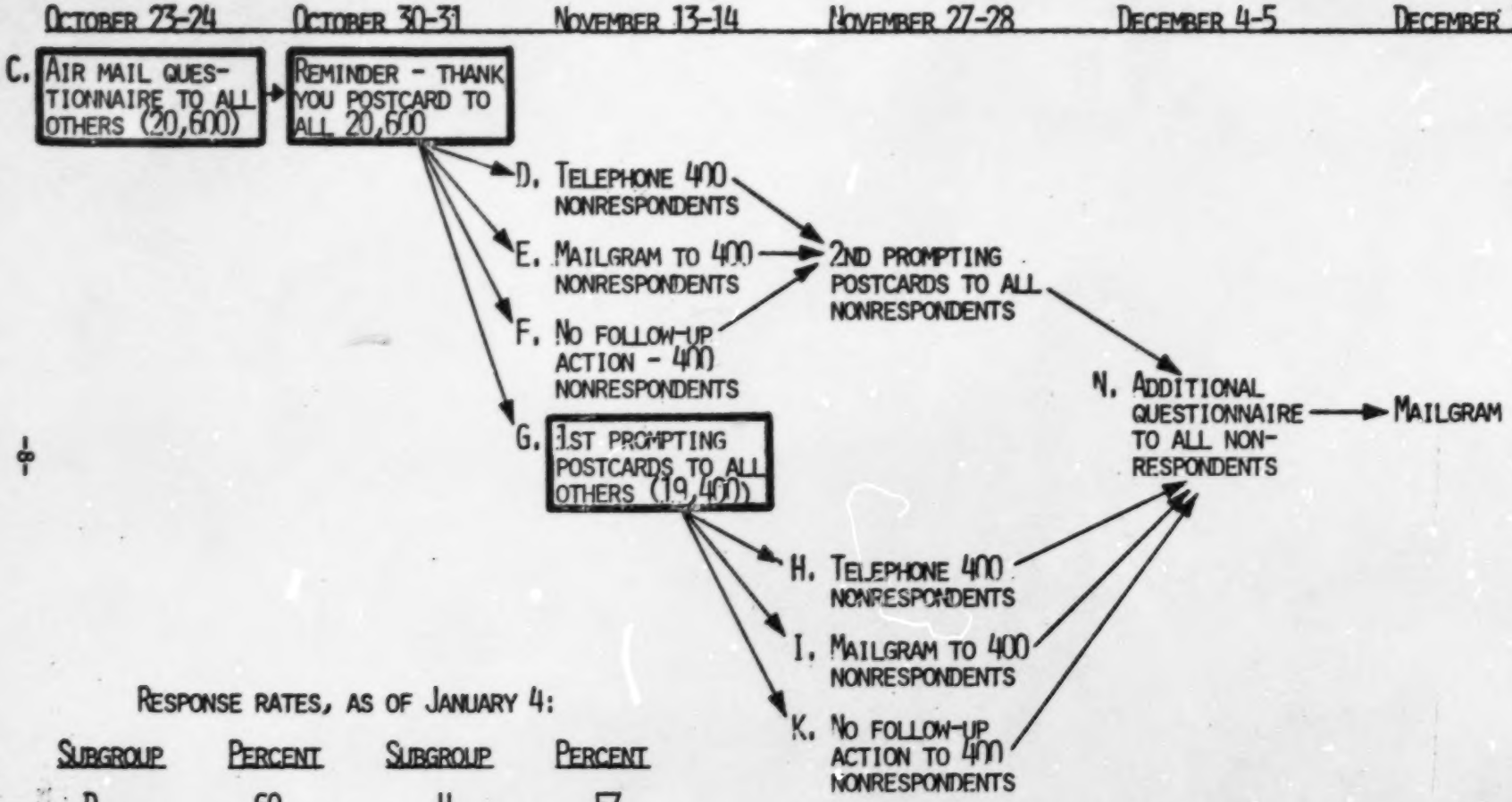
The various "trial" treatments did yield different returns, as illustrated by Chart 3. As the chart shows, subgroups D, E, and F differ from each other only with respect to treatments in mid-November and subgroups H, I, and K differ from each other with respect to


OCTOBER 23-24
OCTOBER 30-31
NOVEMBER 13-14
NOVEMBER 27-28
DECEMBER 4-5
DECEMBER 12-1
A. AIR MAIL QUESTIONNAIRE TO 400 PHONE ALL 400 TO ADVISE OF MAILING
REMINDER-THANK YOU POSTCARD TO ALL 400
1ST PROMPTING POSTCARD TO ALL 400
B. QUESTIONNAIRE BY CERTIFIED MAIL TO 1,000
REMINDER - THANK YOU POSTCARD TO ALL 1,000
1ST PROMPTING POSTCARD TO 1,000
C. AIR MAIL QUESTIONNAIRE TO ALL OTHERS (20,600)
REMINDER - THANK YOU POSTCARD TO ALL 20,600
D. PHONE 400 NONRESPONDENTS
E. MAILGRAM TO 400 NONRESPONDENTS
F. NO FOLLOW-UP ACTION - 400 NONRESPONDENTS
2ND PROMPTING POSTCARD TO ALL NONRESPONDENTS
N. ADDITIONAL QUESTIONNAIRE TO ALL NONRESPONDENTS
P. MAILGRAM
G. 1ST PROMPTING POSTCARDS TO ALL OTHERS (19,4??)
H. PHONE 400 NONRESPONDENTS
I. MAILGRAM TO 400 NONRESPONDENTS
J. 2ND PROMPTING POSTCARD TO 400 NONRESPONDENTS
K. NO FOLLOW-UP ACTION TO 400 NONRESPONDENTS
L. ADDITIONAL QUESTIONNAIRE TO ALL OTHER NONRESPONDENTS
M. PHONE 400 NONRESPONDENTS
O. 2ND PROMPTING POSTCARD TO ALL NONRESPONDENTS

-4-

CHART 3

SELECTED RESULTS FROM SPECIAL FOLLOW-UP PROCEDURES


OCTOBER 23-24
OCTOBER 30-31
NOVEMBER 13-14
NOVEMBER 27-28
DECEMBER 4-5
DECEMBER 12-13
C. AIR MAIL QUESTIONNAIRE TO ALL OTHERS (20,600)
REMINDER - THANK YOU POSTCARD TO ALL 20,600
D. TELEPHONE 400 NONRESPONDENTS
E. MAILGRAM TO 400 NONRESPONDENTS
F. NO FOLLOW-UP ACTION - 400 NONRESPONDENTS
2ND PROMPTING POSTCARDS TO ALL NONRESPONDENTS
N. ADDITIONAL QUESTIONNAIRE TO ALL NONRESPONDENTS
MAILGRAM
G. 1ST PROMPTING POSTCARDS TO ALL OTHERS (19,400)
H. TELEPHONE 400 NONRESPONDENTS
I. MAILGRAM TO 400 NONRESPONDENTS
K. NO FOLLOW-UP ACTION TO 400 NONRESPONDENTS

RESPONSE RATES, AS OF JANUARY 4:

SUBGROUP	PERCENT	SUBGROUP	PERCENT
D	69	H	57
E	51	I	39
F	46	K	29

treatment late in November. H, I, and K are "harder core" nonrespondents than D, E, and F, having failed to respond to the first prompting postcard.

Information on response rates for the various procedures, plus cost data, plus scheduling requirements for each procedure will be of considerable assistance in planning our strategy for the second follow-up. Indeed, preliminary information of this kind contributed to our planning of the final stages of the first follow-up.

Response rates. Our final response rate for the non-interview follow-up was 61%. Response rates for the resurvey group lagged behind those for the base year subjects (47% for the resurvey group versus 65% for the base year group). One likely reason for the lower rate is that students who did not participate in the base year effort at their school may feel less involved in the project. Another possible factor is that our tracing information was much less complete, consisting only of the latest address on file at the high school from which the student had graduated more than a year previously. We await with interest such comparison as we can make after the Census staff completes its field work. Chart 4 illustrates variations in rate for different subgroups within the base year sample.

Percents in Chart 4 are based solely on students who had participated in the base year study. We cannot compute these percentages for the resurvey group at this time because we don't know the denominators; that is, until all of the data are in, we won't know how many of the total resurvey group belong in each sex or ethnic category. It should be pointed out that the family income data used in these tabulations was provided by the students.

RESPONSE RATES FOR SELECTED SUBGROUPS
PRIOR TO FIELD INTERVIEWS

Subgroup	Number in Sample*	Response Rate
Sex:		
Male	8,074	60%
Female	8,201	71%
Race:		
Black	2,023	48%
White	12,287	70%
Other	1,550	56%
Family Income (1971-72)		
Less than $3,000	943	54%
$3,000 to $6,000	1,621	60%
$6,000 to $7,500	1,462	63%
$7,500 to $9,000	1,197	64%
$9,000 to $10,500	1,524	72%
$10,500 to $12,000	1,216	68%
$12,000 to $13,500	1,106	69%
$13,500 to $15,000	837	74%
$15,000 to $18,000	1,082	73%
$18,000 +	1,756	74%

*Includes only those students with base-year data on the specified variable; students in resurvey sample have lower overall response rates.

Content of questionnaires. Decisions regarding content and scope of LSEE questionnaires are made on the basis of extensive consultation with potential users of the data, as well as study of past longitudinal surveys. Thus, major inputs to instrument design have been made by a National Conference in April 1970, including representatives of all sectors of the education community, several Bureaus of the Office of Education (including the Office of Planning, Budgeting and Evaluation, the Bureau of Higher Education, and the Bureau of Adult Vocational and Technical Education), other Federal agencies (including the Office of Management and Budget and the Departments of Labor and Defense), a special subcommittee of the Chief State School Officers, and planning groups made up of leading educational researchers.

As the study goes on, new emphases in education and society point to areas which the survey instruments must tap. For example, the Education Amendments of 1972 place such stress on postsecondary education other than traditional higher education that our follow-up questionnaires must reflect these emphases. Continuing high unemployment rates and the end of the military draft are other relatively recent events which our questionnaires must reflect.

In developing our follow-up questionnaires, we have attempted to focus on the unique properties of a longitudinal effort--that is, activity states over time, as related to earlier plans, to intervening events, and to changes in values, attitudes, and aspirations.

Accordingly, each of our successive follow-up instruments will, at a minimum, cover what has happened to the respondent since he or

she was last queried. For this purpose, the intended activity states, as reported in the base year study, are major points of reference. The planned activity states and percents designating each, are shown in Chart 5.

Time is a critical dimension in assessing activity states if longitudinal data are to be meaningfully interpreted. Thus, development of the follow-up questionnaire had to take into account the fact that more than a year had elapsed between the base year inquiry in spring 1972 and mailout of the first follow-up in October 1973. Moreover, it was recognized that responses to the follow-up might be supplied at any point from October 1973 through the next March. As a result, it was essential that questions about activity states specify a definite time frame. We chose October 1972 and October 1973 as our principal points for the first follow-up and October 1974 for the second. Rather detailed information is sought concerning educational activities on these two dates, and somewhat less about all other schooling from June 1972 on. The questionnaire includes reasons for withdrawal or transfer, major program, performance records, how the schooling was financed, and satisfaction with the educational experience. There are analogous questions about work experience for the same points in time: type of work and employer, pay rates, duration of job, satisfaction, methods used in looking for work, and employment in relation to specialized training received in high school.

Other classes of variables are included in the questionnaire because they are likely to be important in explaining career decisions, plans,

CHART 5

PLANS REPORTED BY BASE YEAR SAMPLE

PLANNED ACTIVITY	PERCENT
WORK FULL-TIME	23.61
WORK PART-TIME, WITHOUT ATTENDING SCHOOL OR COLLEGE	1.88
ENTER AN APPRENTICESHIP OR ON-THE-JOB TRAINING PROGRAM	2.43
GO INTO MILITARY SERVICE	3.31
TAKE ACADEMIC COURSE AT A JUNIOR OR COMMUNITY COLLEGE	9.70
TAKE TECHNICAL OR VOCATIONAL COURSES AT A JUNIOR OR COMMUNITY COLLEGE	5.01
ATTEND A VOCATIONAL, TECHNICAL, OR TRADE SCHOOL OR BUSINESS COLLEGE	8.52
ATTEND A FOUR-YEAR COLLEGE	29.75
BE A FULL-TIME HOMEMAKER	2.54
OTHER (TRAVEL, STAY AT HOME, TAKE IT EASY, NO PLANS)	3.78
NON-RESPONSE (INCLUDING SUBJECTS WHO DID NOT COMPLETE A STUDENT QUESTIONNAIRE)	9.47
	100.

and activity changes--for example: (a) personal characteristics (e.g., marital status), (b) personal values, attitudes, and aspirations, (c) participation in financial aid and other Federal educational programs, (d) use of counseling services and other sources of advice or guidance.

There is almost no limit to the number of questions we and our user groups might like to ask. Despite efforts to reduce its scope, our first follow-up questionnaire turned out to be more than 20 pages long. Of course, not every respondent answers every question. The variety of possible combinations of questions for different respondents is tremendous; we have been greatly concerned lest respondents get lost in the complex maze of skip patterns, or give up in exasperation.

We are now developing a questionnaire for a field test preliminary to our second follow-up scheduled for fall 1974. Its content is fairly similar to the first follow-up, with activity state information focused on October 1974. According to present plans the third follow-up will take place two years later, in fall 1976.

Data Analysis. A full description of the analytic possibilities of our follow-up data would go far beyond the time allotted to this panel, so I shall cover only a few points.

As a first and basic level of analysis, we shall be concerned with strictly descriptive statistics on the individual variables and direct changes in these variables. These descriptive statistics will be derived for the entire aggregate of students and, more importantly, for specific subgroups. The subgroups may be defined on specified

demographic variables (e.g., sex and race), on activity or status variables (e.g., enrollment in various kinds of postsecondary institutions), or on change variables (e.g., changes in attitudes and aspirations may be compared for subjects who have changed their career plans vs those who have not changed). This first level will provide a straightforward summary of the data. However, its limitations are clear: it will not give us the critical interrelationships among variables which the study aims to provide.

Of particular concern in any longitudinal study is the development of transition matrices portraying the movement between activity states for specific subpopulations across different time periods. An illustrative, although somewhat oversimplified, classification of variables for an analysis of transitions is shown in Chart 6.

Time 1 variables will be cross tabulated with Time 2, Time 3, and Time 4 variables; and Time 2 can be cross tabulated with Time 3, and so forth. We may also present selected transition matrices between Time 1 and Time 3 measures for populations defined on the basis of activity states at the intervening Time 2, for example. Possibilities are almost endless; our problem is to focus on those relationships which may contribute information needed by our users for policy and planning purposes.

In addition to descriptive and transitional analyses, we also plan to carry out a limited series of relatively complex multivariate analyses on selected topics. Here, the selection and identification of variables will be limited and determined by specific theoretical or substantive problems.

ILLUSTRATIVE CATEGORIES OF VARIABLES

TIME 1 (SPRING '72)	TIME 2 (OCTOBER '72)	TIME 3 (OCTOBER '73)	TIME 4 (OCTOBER '74)
ABILITY	ACTIVITY STATE	PLANS	PLANS
HIGH SCHOOL EXPERIENCE	FINANCIAL AID STATUS	GOALS	GOALS
PLANS		SELF CONCEPT	SELF CONCEPT
GOALS		LOCUS OF CONTROL	LOCUS OF CONTROL
SELF CONCEPT		ACADEMIC PERFORMANCE	ACADEMIC PERFORMANCE
LOCUS OF CONTROL		JOB SATISFACTION	JOB SATISFACTION
ACADEMIC PERFORMANCE		ACTIVITY STATE	ACTIVITY STATE
EXPECTATIONS		FINANCIAL AID STATUS	ATTITUDES
			CAREER AWARENESS
			FINANCIAL AID STATUS

Clearly, NCES will be unable to exploit fully the possibilities of the LSEE data base. From the start, it has been assumed that other sectors of the education community would play a major role in such analyses. Toward this end, we plan to make our data tapes available as inexpensively and as widely as possible. The tapes to be released to researchers will not, of course, contain names, addresses or other data that might permit identification of individuals or schools.

When the data tapes become available, we shall publicize the fact widely. We hope that there are potential users in this room.